

What is claimed is:

1. A method, comprising:  
forcing a first fluid through a feeding supply means and out of an exit opening of the feeding supply means as a first fluid stream;  
filling a pressure chamber with a second fluid which chamber is in fluid connection with the exit opening of the feeding supply means;  
forcing the second fluid toward and into the first fluid stream circumference in a manner which reduces the circumference of the first fluid stream and breaks the stream into particles having a diameter less than the diameter of the exit opening of the first fluid feeding supply means; and  
allowing the second fluid to exert force on the first fluid and force particles of the first fluid out of an exit orifice of the pressure chamber positioned downstream of a direction of flow of the first fluid stream.
2. The method of claim 1, wherein the first fluid is a liquid and the second fluid is a gas.
3. The method of claim 1, wherein the second fluid is forced into the first fluid stream circumference at an angle in a range of from about 15° to about 90°.
4. The method of claim 1, wherein the second fluid is forced into the first fluid stream circumference at an angle in a range of from about 30° to about 90°.
5. The method of claim 1, wherein the second fluid is forced into the first fluid stream circumference at an angle in a range of from about 45° to about 90°.
6. The method of claim 1, wherein the second fluid is forced into the first fluid stream circumference at an angle in a range of from about 90° ±5°.

7. The method of claim 1, wherein the first fluid is caused to move at a speed equal to or greater than the speed of sound in air.

8. The method of claim 1, wherein the second fluid is caused to move at a speed equal to or greater than the speed of sound in air.

9. The method of claim 1, wherein the exit opening of the feeding supply means is about 0.5 to 1.2 times the diameter of the exit orifice of the pressure chamber.

10. The method of claim 1, wherein the exit opening of the feeding supply means is about 0.7 to 1.2 times the diameter of the exit orifice of the pressure chamber.

11. The method of claim 1, wherein the exit opening of the feeding supply means is about 0.8 to 1.0 times the diameter of the exit orifice of the pressure chamber.

12. The method of claim 1, wherein the pressure chamber comprises a channel with a first channel opening at a main portion of the chamber and second channel opening which encircles an area where the first fluid stream flows.

13. The method of claim 12, wherein the second channel opening is less than two times the diameter of the exit orifice of the pressure chamber.

14. The method of claim 12, wherein the second channel opening is less than one time the diameter of the exit orifice of the pressure chamber.

15. The method of claim 12 wherein the ratio of the diameter of the second channel opening to the diameter of the exit orifice of the pressure chamber is in a range of from about 0.2 to about 0.7.

16. The method of claim 1, wherein the particles formed have 1/10 or less the mean volume of the particles expected to be formed by normal Rayleigh breakup.

17. The method of claim 1, wherein the particles formed are sufficiently small that their surface tension forces substantially match the amplitude of pressure fluctuations created by the first fluid and second fluid exiting the pressure chamber.

18. A method, comprising:  
forcing a liquid through a supply component and out of circular exit opening of the supply component as a liquid stream;  
directing a flow of gas around a circumference of the liquid stream at an angle of from about 45° to about 90° causing the liquid and gas to physically interact; and  
allowing the liquid and gas to escape from an opening positioned downstream of a direction of flow of the liquid stream and form liquid particles suspended in the gas.

19. The method of claim 18, wherein the liquid comprises a pharmaceutically active drug.

20. The method of claim 19, further comprising:  
inhaling the particles of liquid suspended in the gas.

21. The method of claim 18, wherein the liquid is comprised of a hydrocarbon fuel.

22. The method of claim 21, further comprising:  
igniting the particles suspended in the gas.

23. A method of creating an aerosol, the method comprising the steps of:

forcing a liquid through a feeding channel and out of an exit opening of the feeding channel wherein the exit opening of the feeding channel is positioned such that the liquid flowing out of the channel flows toward and out of an exit orifice of a chamber surrounding the exit opening of the feeding channel;

forcing a gas into the chamber and out of the exit orifice of the chamber;

wherein the exit opening of the feeding channel has a diameter in the range of about 5 to about 10,000 micro-meters and the exit opening of the channel is positioned at a distance in a range of from about 5 to about 10,000 micro-meters from an entrance point of the exit orifice.

24. A method of creating an aerosol, comprising the steps of:

forcing a liquid out of an exit opening of a liquid supply means to form a liquid stream;

forcing a gas into a chamber and out of an exit orifice of the chamber aligned with a flow path of liquid flowing out of the exit opening whereby the liquid stream is focused by the gas to dimensions smaller than dimensions of the exit opening;

wherein the exit opening and exit orifice are positioned such that particles formed outside the exit orifice have a size determined by the relationship between the particle surface tension and the amplitude of turbulent pressure fluctuation outside the chamber and further wherein that relationship is such that the particles have dimensions smaller than any dimension of the focused liquid stream.

25. A method, comprising the steps of:

forcing a liquid out of an exit opening of a liquid supply means;

forcing a gas into a pressure chamber and out of an exit orifice of the chamber;

causing the gas to converge against the liquid exiting the liquid supply means thereby (a) causing the liquid to assume dimensions smaller than dimensions of the exit opening of the liquid supply means; (b) creating a violent interaction between the liquid and the gas; (c) carrying the liquid away from the exit orifice of the pressure chamber; and (d)

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resulting in the liquid forming particles which are smaller in size than expected based on spontaneous capillary breakup of the assumed smaller dimensions of the liquid.

26. The method of claim 25, wherein the exit opening of the feeding supply means has an opening with a cross-sectional configuration chosen from a circle, an oval, a square and an elongated rectangular slit.